

CLAIMS

1. Device for radiation treatment of proliferative tissue surrounding a cavity in an animal body comprising:

5 - at least a first inflatable chamber having a wall for placement in said cavity;

- a supportive probe having an elongated body with a distal end connected with said at least first inflatable chamber and a proximal end remaining outside said cavity;

10 - inflation means for inflating and deflating said at least first chamber;

- radiation delivering means for placing at least one energy emitting source within said cavity for performing said radiation treatment,

15 **further characterized in that,**

- said radiation delivering means comprises at least one hollow, flexible tunnel channel having at least one fixation point to said wall of said first inflatable chamber and a proximal end remaining outside said cavity;

20 - said at least one hollow, flexible tunnel channel serves to guide said at least one radiation emitting source inside said cavity.

2. Device according to claim 1, **characterized in that,** said first inflatable chamber is accommodated around said distal end of said supportive probe.

25 3. Device according to claim 1, **characterized in that,** a distal end of said at least one hollow, flexible tunnel channel is fixed to the inner side of said wall of said first inflatable chamber.

4. Device according to claim 3, **characterized in that,** when said chamber is deflated said at least one tunnel channel is accommodated
30 in a corresponding longitudinal groove present in the circumferential surface of said elongated body of said supportive probe.

5. Device according to claim 4, **characterized in that**, said supportive probe is provided with a plurality of longitudinal grooves present in said circumferential surface for accommodating a corresponding plurality of tunnel channels.

5 6. Device according to claim 5, **characterized in that**, said the distal ends of said plurality of tunnel channels are arranged in at least one perpendicular plan relative to the supportive probe.

7. Device according to claim 1, **characterized in that**, said at least one hollow, flexible tunnel channel is fixed to the outer side of
10 said wall of said first inflatable chamber.

8. Device according to claim 7, **characterized in that**, a plurality of said tunnel channels are fixed equidistant on the outer side of the wall of the first inflatable chamber.

9. Device according to claim 7, **characterized in that**, said
15 first inflatable chamber is surrounded by a second inflatable chamber.

10. Device according to claim 9, **characterized in that**, said first and second inflatable chambers are separated by a third inflatable chamber system placed equidistant between said tunnel channel.

11. Device according to claim 1, **characterized in that**, said
20 radiation delivering means further comprise at least one central catheter bore having a proximal end remaining outside said cavity and a distal end extending in longitudinal direction within said elongated body of said supportive probe.

12. Device according to claim 1, **characterized in that**, the
25 device further comprises protection means for covering said proximal end of said supportive probe, said proximal end of said at least one tunnel channel and said proximal end of said at least one central catheter bore, when the patient is not treated.

13. Device according to claim 1, **characterized in that**, for
30 guiding said at least one energy emitting source through said at least one tunnel channel until within said cavity at least one hollow insertion

catheter with a proximal end and a distal end is introduced into said at least one tunnel channel.

14. Device according to claim 13, **characterized in that**, said at least one hollow insertion catheter is connected with it's proximal
5 end to an afterloader device.

15. Device according to claim 14, **characterized in that**, said at least one energy emitting source is contained in said afterloader device and guided through said insertion catheter toward said cavity using a source wire having a distal end connected to said energy emitting
10 source.

16. Device according claim to claim 1, **characterized in that**, the energy emitting source is a High Dose Rate Ir-192 source.

17. Device according claim to claim 1, **characterized in that**, the energy emitting source is a Pulse Dose Rate Ir-192 source.

18. Device according claim to claim 1, **characterized in that**, the energy emitting source is a miniature X-ray source.
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19. Device according claim to claim 1, **characterized in that**, the energy emitting source is a radio-waves emitting source.

20. Device according claim to claim 1, **characterized in that**, the dose distribution generated with said plurality of energy emitting sources positioned in said plurality of hollow tunnel channels will follow outside the chamber wall the conformal specification of the dose in the surrounded tissue of the first inflatable chamber.
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